V-Y latissimus dorsi flap for coverage of anterior chest wall defects after resection of recurrent chest wall chondrosarcoma

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Video clip is available online.

The choice of prosthetic materials for tissue coverage to stabilize extensive defects in the chest wall is of paramount importance to a successful outcome of reconstructive surgery. The V-Y latissimus dorsi flap has been described in the reconstruction after resection for recurrent breast cancer.¹ We report one example of such a reconstruction technique in the surgical management of a recurrent aggressive chondrosarcoma of the anterior chest wall.

Nine months earlier, a 44-year-old patient had undergone in another institution an extensive chest wall resection for a right-sided chondrosarcoma of the chest wall arising from the third and fourth costochondral junctions. The patient was referred to our attention for the detection of recurrent chondrosarcoma at the same site and immediately below (Figure 1), mandating removal of the prosthesis and resec-

tion of the right hemisternum along with the anterolateral segments of ribs 2 to 6. The surgical resection included full-thickness resection and stabilization of the anterior chest wall through a 26 × 34-cm, 2-mm polytetrafluoroethylene patch (Gore-Tex patch; W.L. Gore & Associates, Inc, Flagstaff, Ariz) (see Video 1). The myocutaneous defect was covered through a V-Y latissimus dorsi flap according to the technique originally described by Micali and Carramaschi.¹ The technique entails the mobilization of the latissimus dorsi and the overlying V-shaped skin island to then transpose the triangular myocutaneous flap anteriorly to cover the prosthesis.² To this purpose, the most posterior edges of the horizontal incisions were prolonged posteriorly according to curvilinear lines merging just behind the scapula. Starting from the auscultatory triangle, the elevation of the latissimus dorsi was completed by division from the lumbar fascia of the muscular attachments and dissection taken cranially toward the humerus (Figure 2). The donor and receiver sites were easily closed under no tension over subfascial and subcutaneous drains. After 10 months, there is no evidence of recurrent disease and the reconstruction appears acceptable from a functional and cosmetic standpoint (Figure 3).

Two major features of the V-Y flap are of extreme interest to the thoracic surgeon. First, the flap can reliably cover large anterior or anterolateral chest wall defects after resection of primary or secondary chest wall tumors even if the administration of adjuvant chemotherapy or radiotherapy is anticipated.¹ Second, the V-Y flap allows for an ideal alignment of the donor wound edges² by virtue of the V-shaped tail,

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FIGURE 1. Chest computed tomogram showing the craniocaudal extension of tumor recurrence overlying the previously positioned patch.

FIGURE 2. Intraoperative sequence and diagrams demonstrating the V-Y latissimus dorsi myocutaneous flap mobilized and transposed anteriorly (the view is taken from patient's head). (Modified with permission from Woo E, Tan BK, Koong NN, Yeo A, Chan MYP, Song C. Use of the extended V-Y latissimus dorsi myocutaneous flap for chest wall reconstruction in locally advanced breast cancer. *Ann Thorac Surg.* 2006;82:752-5.)

FIGURE 3. Final outcome 2 months after the operation.

which helps avoid any wound tension, even if large cutaneous paddles are needed, only by slightly curving the horizontal branches of the V incision. Obvious limitations in the use of this flap derive from the suspicion of interruption or compression of the thoracodorsal pedicle.² In conclusion, the addition of this simple technique to the current thoracic surgical armamentarium increases the versatility required in the surgical management of chest wall tumors

without resorting to complex plastic surgical reconstructive procedures.

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